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ORIGINAL ARTICLES.

POST-OPERATIVE ACCIDENTS FOLLOWING SUCCESSFUL CATARACT EXTRACTIONS.

By DR. S. C. AYRES,
CINCINNATI, O.

F. E., 70 years of age, was operated on April 27, 1900. He had at the time a mature cataract in the right eye and a progressive cataract in the left. The operation in the right eye was done with iridectomy. The healing was uncomplicated, and a month later he had v. = $^{6}/_{9}$ with proper correcting lens. Ten months later—February, 1901—I was called to see him and found the following condition: The globe was injected, the anterior chamber empty, and tension very much reduced. He said that he had had some pain during the night previous and awoke with his hand pressing on his eye. The only theory to explain this condition was that he had struck the eye during sleep and ruptured the incision, thus allowing the aqueous to escape. The eye was bandaged, and in the course of two or three days the wound closed, and the anterior chamber was re-established; vision was partially restored only. The eye was sensitive to light and tender to touch. The iris was somewhat discolored and the ciliary zone deeply injected. A few days later I found the anterior chamber empty from leakage of the aqueous. From this time on

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a chronic iridocyclitis set in, which gradually impaired the sight, until finally the eye became quite blind. The globe varied in tension from + to —, but was not very painful. In my opinion the original injury which ruptured the corneal incision was accompanied by intraocular hæmorrhage and some damage to the ciliary body. This set up the chronic inflammation, which continued for several weeks and resulted in entire loss of vision.

J. L., aged 63, was operated for cataract Nov. 17, 1900. Preliminary iridectomy and trituration had been done on the eye about ten months previously. The extraction was uncomplicated, and no untoward symptoms occurred. Vision $= {}^{5}/_{30}$. Four months later—March, 1901—he came to me with a large hæmorrhage in the anterior chamber. The eye itched a little, and he thinks he rubbed it at night. There was no pain in the eye, nor tenderness in the ciliary region. Vision was of course reduced to perception of light. Under the influence of warm formentations the blood slowly absorbed and finally disappeared. In June vision $= {}^{6}/_{200}$ and improving. A secondary membrane formed, but this was not interfered with.

In this case the man had been a steady drinker, and I thought at first there might be some toxic amblyopia, and put him upon treatment and delayed the extraction for several months. He was also a great sufferer from articular rheumatism and at times was confined to his bed.

He attributed the hæmorrhage to the rubbing, as he awoke from sleep with his hand on his eye, and experienced some pain for a short time.

W. A., aged 68, was operated on four years ago. She had mature lenses in each eye, with good perception and projection. The right lens was removed by simple extraction, and the result was excellent. There was a round central active pupil, and the recovery from the operation was prompt and uncomplicated. In May, 1901, I examined her and found the eye entirely blind, the iris discolored, pupil closed by dense membrane, and tension minus. She says she could see until about two weeks ago, when it suddenly failed. She stated that she awoke up at night with her fingers pressing the eye ball. While she attributed the loss of vision to the

pressure on her eye, it does not seem clear that this is the case. For some time past she had had attacks of transient dimness as if a cloud was passing, but these did not last long. The globe looked as if it had suffered from an iridochoroditis, and probably her injury to the eye caused an intraocular hæmorrhage.

It is rather exceptional for an eye to retain good vision for nearly four years and then suddenly develop an iridocyclitis.

In considering these cases there is no question about the trauma in the first case. The empty anterior chamber and the lessened tension are conclusive evidences, as well as the statement of the patient himself. That this should have occurred so many months after a smooth, uncomplicated operation is rather unusual.

In the second case also the hæmorrhage seems due to the rubbing of his eye. His physical condition was bad at the time, as he was just recovering from an attack of rheumatism.

In the third case it is not so clear that the loss of the eye was due to an injury, although it may have precipitated its final loss. Her sight was fairly good until about two weeks before the eye became blind. But the appearance of the eye indicated that the inflammation had been of longer duration. The general expectation is that a successful extraction will afford good vision for the balance of our life (barring secondary membranes), but these cases were so exceptional I deemed them worthy of record.

PAMPHLETS RECEIVED.

"Removal of the Tonsils," by J. M. Kershaw, M.D.

"Winter Cures in High Mountains," by W. Erb, M.D.

"The Clearing Up of Corneal Scars," by E. Fuchs, M.D.

"The Climate of Long Island," by Le G. N. Denslow, M.D.

"Operation for Rendering Artificial Eyes Mobile," by H. Wolff, M.D.

"The Cataphoric Treatment of Cancer," by G. B. Massey, M.D.

A CASE OF TRAUMATIC RETROFLEXION OF THE IRIS, ANATOMICALLY EXAMINED.

By ADOLF ALT, M.D.

IN the October number (1899) of this journal L. W. Beardsley of this city published an article on "Introversion of the Iris," in which he related the clinical history of a case of this comparatively rare affection. In this paper he states that "those who have been so fortunate as to secure the affected eye for examination have found that the iris is turned inward in part or entirely, the introverted portion lying backwards upon the ciliary body, and is invisible." From these remarks it might appear that quite a large number of such cases had been anatomically examined. As far as I know, however, and can find in the large collection of works at my disposal, all modern writers on this subject, as Praun, De Wecker, Fuchs, Foerster, and others, have failed to add new anatomical evidences as regards this affection. They all refer back to Schmidt and von Ammon. Fuchs gives a schematic drawing to show the manner in which the condition might come about, but it is purely theoretical.

It is strange, but it seems, therefore, that von Ammon's examination of two eyes with retroflexion of the iris, made about 47 years ago, is the only one on record. His examination was purely macroscopical by dissecting the eyes under water; neither did he give an illustration with his paper. (See von Graefe's Archiv für Ophthalmologie, V. 1, 2, pages 119 and 299, 1855) on "*The Disappearance of the Iris by Retroflexion Anatomically Proven.*" After having given the description of the unopened eye, examined by oblique illumination and with Coccius' ophthalmoscope, he says: "The anatomical examination gave the following results: When the sclerotic was severed from the cornea a few lines behind the corneo-scleral junction, both of these membranes were found to be normal. In its external (temporal) part the iris was in its normal position, its inner (nasal), upper and lower parts were perfectly retroflected towards the fundus of the eye. The vitreous body was shifted upwards, the lens which lay intact in its intact capsule touched with its upper edge the middle of the upper ciliary processes, its lower edge lay about in

the middle of the abnormally enlarged pupil, forming a concavo-convex line through its middle. The lower part of the vitreous body was shifted upwards and lay against the posterior surface of the cornea. There was, therefore, a retroversio partialis lentis at corporis vitrei."

In this case the retroflexion of the iris was produced by a fatal trauma (suicide).

FIG 1.

The clinical appearance of these cases of total or partial retroflexion of the iris is now well known and described in every larger text-book; it need, therefore, find no place here.

Through the kindness of my friend, Dr. J. M. Ray of Louisville, Ky., I have been so fortunate as to obtain an eye with traumatic partial retroflexion of the iris. If I am correct this would be the first eye with this affection examined microscopically.

The eye had been hardened in formal solution and the characteristic clinical appearance of a partial retroflexion of the iris could well be seen. On one (the upper) side the iris had apparently disappeared altogether, while on the diametrically opposite side (downwards) the peripheral part of

the iris was seen to lie close to the posterior surface of the cornea, while its sphincter edge also was tilted backwards. The crystalline lens which had been dislocated was floating about in the fluid vitreous body, which with the lens escaped when the eye was cut in two.

After this had been done the retroflexion of the iris was even more plainly visible, and no doubt as to the diagnosis

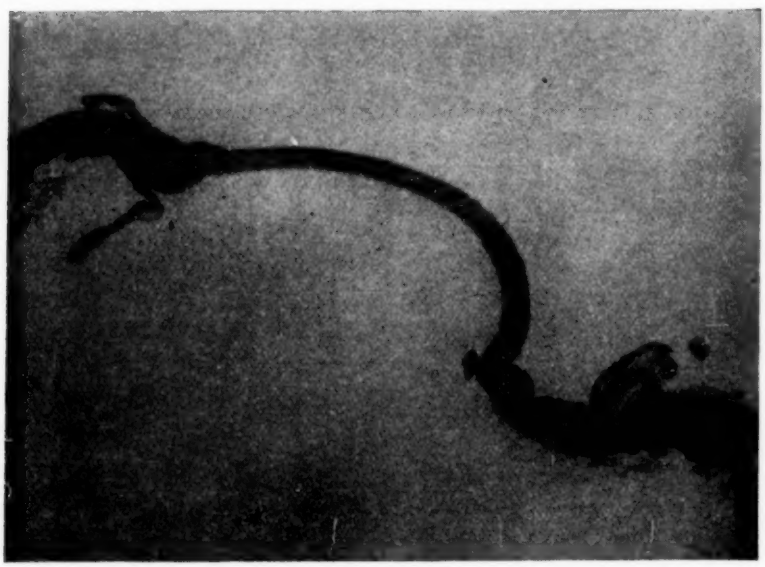

FIG. 2.

remained. It was also clear that the iris was not, as is usually described, adherent to the ciliary processes, but quite a considerable space intervened between iris and ciliary body, which seemed to have been occupied by vitreous body. The crystalline lens was smaller and more spherical than normal. The optic nerve showed a glaucomatous excavation.

Other pathological changes which the eyeball showed have no bearing on this particular description.

In microscopic section (see Fig. 1) through the parts in which the iris had totally disappeared it was seen that for a short distance the most peripheral part of the iris was adherent to the compressed ligamentum pectinatum, thus occluding the filtration angle. Leber's venous plexus was obliter-

ated. From where Descemet's membrane begins the iris was turned backwards in a gentle curve and not abruptly, as it usually appears to be when looked at through the cornea. In this manner quite an open space was left between the uveal surface of the iris and the ciliary processes, in which remnants of vitreous body are seen lying. The tissue of the iris is thinner than usual, its blood vessels have very thick walls and contain blood. This thinness of the iris is partly due to stretching and partly to the atrophy of the tissue. The uveal layer is perfectly unaltered. A peculiar appearance is that, at the pupillary margin, contrary to the conditions which obtain when the iris lies in its normal plane, the parenchyma of the iris protrudes over the uveal layer and the sphincter pupillæ, thus overlapping it in a pouch-like manner.

The ciliary body and processes are atrophic to a considerable degree. Fragments of vitreous body and torn fibres of the suspensory ligament adhere to the inner surface.

In sections passing through the pupil a little aside from its largest diameter the conditions are in so far altered, as the part of the iris which is tilted backwards grows gradually smaller. On the diametrically opposite side (see Fig. 2) the atrophic iris is attached to Descemet's membrane almost up to its pupillary margin, which latter alone is tilted backwards. Thus, while we have to deal with a partial retroflexion, the sphincter edge of the iris is tilted backwards all around the pupil. As the crystalline lens fell out of its position, it is impossible to say just how it was situated after the trauma. That it was, however, torn from its suspensory ligament all around its periphery is proven by the very fact of its having fallen out when the eye was cut in two, as also by the shreds of the fibres of the suspensory ligament which remain attached to the atrophic ciliary body.

Probably the lower edge of the lens pressed the periphery of the iris against the cornea, while its upper edge was tilted backwards where the total retroflection of the iris has taken place.

The manner in which the retroflexion of the iris takes place has given rise to a great deal of theoretical reasoning. I still think that Von Ammon's explanation, or a similar one, may be the correct one. The trauma as it flattens the cornea

compresses the contents of the eyeball, which cannot escape. Yet the force of the impact, having torn the suspensory ligament and caused a dislocation of the crystalline lens, which thus no longer supports the pupillary edge of the iris, at the same time tilts the iris backwards. As the force is released and the contents of the eyeball rebound, the retroflexed iris is held in the abnormal position by the dislocated lens. This may be aided in by hæmorrhage and the entrance of vitreous into the anterior chamber. The sphincter pupillæ probably is at once paralyzed by the injuring force.

PAMPHLETS RECEIVED.

"The Electric Skiascope," by H. Wolff, M.D.

"Roentgen Rays in the Treatment of the Skin," by W. A. Pusey, M.D.

"Reflex Aural Symptoms Dependent Upon Dental Caries," by E. B. Dench, M.D.

"Sympathicus Resection in Glaucoma," by M. Ziehe, M.D., and Th. Axenfeld, M.D.

"The Relation of the Medical Editor to Original Communications," by H. W. Moyer, M.D.

"A Series of Demonstration Lenses Intended for Teaching Purposes," by Ch. A. Oliver, M.D.

Clinical and Pathological Papers from the Lakeside Hospital, Cleveland, O., Series I., 1901.

"Susceptibility to Disease and Physical Development in College Women," by A. McDonald, M.D.

"Two Cases of Glioma of the Retina," by G. E. de Schweinitz, M.D., and E. A. Shumway, M.D.

"A Clinical and Histological Study of a Case of Circum-Corneal Hypertrophy of the Conjunctiva," by Ch. A. Oliver, M.D.

"Pathologische Veraenderungen des Lichtreflexes der Macula lutea: Chorioditis, Retinitis Serosa Centralis Acuta," by H. Wolff, M.D.

TRANSLATIONS.

ON THE MOTILITY OF THE PUPIL IN SEVERE OPTIC NEURITIS.*

By J. HIRSCHBERG, M.D.,
BERLIN, GERMANY.
Translated by Adolf Alt, M.D.

IT is really astonishing that the oldest observation of the movements of the pupil which Galenos made use of in order to decide whether a cataract operation offered the chances of restoring vision, is not mentioned any longer in modern text-books. In Galenos' work on the causes of the symptoms (I. c. 2, B. VII., page 89, of Kuhn's edition) the following is stated: "Those cataract patients whose pupil dilates, when the fellow eye is covered, may hope to see after the cataract operation."

It is rather surprising, but is explained by his doctrine of the innervation-air—which was said to penetrate from the brain to the pupil—that he did not explore the reflex motility of the eye to be operated on while the fellow eye was covered. Great honor is, however, due to his faculty of observation that he at all recognized the slight dilatation of the pupil which takes place in an eye afflicted with an uncomplicated cataract, when the fellow eye is shaded, for this dilatation is but very slight, although it is never wanting. If in an individual with two healthy eyes one is covered, a slight dilatation of the pupil occurs in the fellow eye.†

We have made numerous examinations and measurements of this *physiological* dilatation. It amounts to about 1 mm. in a medium pupil width of 3 to 4 mm.‡

*Berliner Klinische Wochenschrift, Nov. 25, 1901.

†Of course in the covered eye the same slight degree of dilatation takes place. This holds good in man, but not in the rabbit, for instance.

‡My volunteer assistant, Dr. Altmann, has at my instance made a large series of observations at my clinic, of which I will mention the following samples: (1) In an emmetrope 7 years old, when the fellow eye is covered the pupil is dilated from 4 mm. to 5 mm. (2) In an emmetrope 36 years of age, from 3 to 4 mm. (3) In an emmetrope 60 years the same. The source of light was a Wellsbach burner at 1 meter distance, in a dark room.

Things lie differently, as is well known nowadays, with the *pathological* dilatation of the pupil which occurs in an eye totally blind through an interruption in the optic nerve conduction, but is otherwise unaltered, as soon as the healthy eye is covered.

Let us consider a case of recent section of the optic nerve of one eye.* As a rule *both* pupils show a medium dilatation. As soon as the *healthy* eye is covered the pupil of the *blind* eye is dilated to an *extraordinary degree;* it does not contract when light is thrown into the blind eye, but very forcibly when the healthy eye is illuminated.

Since, then, when the optic nerve has recently been severed, and also in recent blindness from optic neuritis,† the ophthalmoscope may at first reveal *nothing abnormal*, the presence of this pathological dilatation of the pupil, that is, of this indirect pupil reaction, is an almost *infallible symptom* by which to prove actually that one eye is totally blind.

When, however, this sign is wanting, when the pupil reacts in the eye which is said to be blind in the same normal way as in the healthy fellow eye, we have to find out whether we have to deal with a malingerer or a hysteric.

It is not always possible to separate these two spheres absolutely, since they really pass over into each other. Yet I do not now want to follow up this thought, but I want to show how, in cases in which *a priori* the diagnosis of hysteria seems perfectly justified, the dilatation of the pupil secures at once, or at least at an early period, the assumption of a material, inflammatory disease, while the ophthalmoscope can bring the proof only at a later date.

Of course we must not forget, as I have shown at an earlier occasion, that an acute post-bulbar optic neuritis runs uniformly through the following stages: First there is impairment of vision (blindness) with a normal fundus. Then impairment of vision with a pathological fundus, and finally (in the favorable cases) cure of the impairment of vision with permanent, though often very trivial, changes at the optic nerve entrance.

*Cf. my Einf. in. d. Augenheilk, I., page 77.

†Cf. my communications on independent optic neuritis CBl. f. A. Nov., 1887, where I have described the pupillary phenomena and discussed the stages of the disease.

On May 7, 1901, a young lady of good family, 21 years old, consulted me at the instance of Privy Councillor Jolly, whom I have to thank for the following details:

"Miss X. has been known to me for two years. Her nervous malady dates from 1895. At that time she is said to have had a left-sided hemiplegia with diplopia (paresis of abducens). In the following years the symptoms varied considerably. There was numbness of the right, at other times of the left side. Two years ago there were symptoms of a general nervosity and weakness with pronounced anæmia. After the exhibition of iron and two courses at Rippoldsau, the patient was almost well during last winter, but became again sick after having suffered a few weeks previously from a severe contusion of the hip, which had frightened her very much. When on May 2d she came to see me, both legs were numb, especially the left one. She also complained of impairment of vision in the right eye. Since on that date the pupillary reaction was perfectly normal, I assumed again a hysterical affection due to anæmia. Nothing warrants the assumption of an inherited or acquired lues."

As the impairment of vision in the right eye grew daily worse and worse, the patient was brought to me May 7, 1901.

Left eye normal; right eye totally blind. No trace of light perception. The fundus, however, even in the upright image, shows absolutely nothing abnormal; it cannot even be called anæmic. The most important symptom is the pupillary reaction. Both pupils are of medium width, about 3½ mm., in medium daylight. As soon as the left healthy eye is covered with the hand, the pupil of the right eye is within one or two seconds forcibly dilated to a width of almost 8 mm., and remains unchanged at this width under the stimulus of light until light is allowed to enter the healthy eye. Movements of the right eye cause a slight pain.

Based on these symptoms, I was forced to assume an inflammation of the right optic nerve behind the eyeball. Neither a general examination of the whole body (especially of the urine) nor of the cavities in the neighborhood of the optic nerve yielded the slightest facts to explain the cause of this affection. I ordered therefor, as in cases of so-called simple optic neuritis, salicylate of sodium to produce perspir-

ation and iodide of potassium, both in moderate quantities, and kept the patient in bed.

Two days later—May 9, 1901—the pain when moving the eyeball, the blindness of the right eye, and the dilatation of its pupil when the left one was covered, were as yet unchanged.

But the ophthalmoscope showed now plainly an optic neuritis of the right eye, engorgement of the blood-vessels, indistinct outlines, dimness of the substance and projection of the optic papilla for 0.75 mm. above the surrounding retina. Left eye perfectly normal.

On May 13, 1901, the blindness and dilatation of the pupil were the same. But two favorable symptoms were now noticed: (1) The pupil widely dilated by covering the healthy eye, contracted a little when illuminated after shading; (2) the optic neuritis has somewhat receded.

On May 17, 1901, the two favorable symptoms were more pronounced. The projection of the papilla was only 0.3 mm., and the eye which for more than a week had been totally blind without a trace of light perception began to see again. It counted fingers at one meter and had a field of vision of normal expanse with a central scotoma.

On May 21, 1901, it counted fingers at 4 meters. Visual field of normal size, with central scotoma. The optic papilla no longer swollen. When the left eye was covered the pupil of the right eye became still widely dilated, yet it reacted to direct light stimulus.

On May 25, 1901: Vision of the right eye was $^5/_{15}$; the optic papilla no longer swollen; its lower edge still somewhat indistinct.

On May 31, 1901: Vision was $^5/_7$, the eye reads finest print (0.5 at 0.25); visual field free—no central scotoma. With the disappearance of the impairment of vision the optic papilla began to get slightly paler. Now, when the left eye was covered, the right pupil showed only a physiological dilation. Patient went to Kreuznach and then to a sea-bath.

On October 8th, I found V=$^5/_4$ in either eye; visual field normal. The outlines of the right optic papilla were again sharply defined; blood-vessels normal, but the whole disc pale.

Thus this interesting case of acute inflammation of the

right optic nerve, from the beginning till the end of the month of May, has been through all the stages. The first stage, the increasing impairment of vision, from May 2d to 5th, I did not observe; the second stage, that of blindness without visible ophthalmoscopic changes, lasted about from May 5th to 8th; the third stage, that of blindness with ophthalmoscopically visible optic neuritis, lasted from May 9th to 14th; the fourth stage, that of the disappearance of the visible changes and of the impairment of vision, took up the second half of the month.

The pathological dilatation of the pupil, with immobility under light stimulus, covers about the second and third stages, in which there is total blindness. Yet, even a few days before vision begins to return, the pupil again contracts under light, and thus furnishes the most important factor at first for the diagnosis and towards the end for the prognosis of the case.

In spite of the severity and duration of the blindness, the cure is perfect. But the optic papilla remains permanently pale, although its function is totally restored, which is probably due to alterations in the connective tissue. The remedies used were not unindicated, but the healing must probably be considered as spontaneous. The cause of this interesting affection is unknown. Optic nerve affections due to anæmia are usually binocular.

In conclusion one short remark. Although the acute simple postocular optic neuritis ends but extremely rarely in total blindness (in 40 cases in three years I saw it only once), occasionally a considerable loss of vision remains permanent, so that the afflicted eye can count fingers at short range only. In such cases a condition of the pupils is observed which stands midway between the physiological and the pathological dilatation, when the healthy fellow eye is covered. In a woman, 57 years old, in whom by an acute optic neuritis in May, 1900, the vision of the left eye had been reduced to light perception, with abolition of direct pupillary reaction, vision of the diseased eye was very poor on October 21, 1901—smaller than $^1/_{60}$; the visual field fair, contracted down and inwards, and with a central scotoma; the papilla perfectly pale. The right eye did not have very fine vision, but was

normal. In the dark room and one-half meter distant from the electric light used for ophthalmoscopical examination, the pupil of either eye measured about 4 mm., but the left one was a trace larger than the right. When the right eye was covered the left pupil became dilated to 6 mm. and reacted sluggishly to light; that of the right eye, on the contrary, dilated only to 5 mm. and reacted promptly upon light.

NOTES CONCERNING THE HISTORY OF THE INVENTION OF THE OPHTHALMOSCOPE.*

By RICHARD GREEF, M.D.,
BERLIN, GERMANY.

Translated by Adolf Alt, M.D.

I THINK it very beautiful and timely that our society will devote this evening to the invention of the ophthalmoscope. Day before yesterday it was exactly fifty years since for the first time Helmholtz demonstrated this instrument at Koenigsberg. It would not be in place here for me to talk of the importance of the ophthalmoscope. I should not like to repeat what is printed in every text-book and what you all know. It is enough to say that every student, before he begins to penetrate into our science, must learn how to use the ophthalmoscope. Without ophthalmoscope there is no scientific ophthalmology and there was none. The great realm of the black cataract, which comprised all that concerned the interior of the eyeball, and in which, as a humorous colleague once said, neither patient nor doctor saw anything, after the invention of the ophthalmoscope was divisioned off in a wealth of characteristic forms of disease. Von Graefe's word, "Helmholtz has given us a new world," did not go any too far. The importance of this invention reaches far beyond ophthalmology. All other medical mirrors are fashioned after the principle of Helmholtz. The examination of the fundus of the eye is, furthermore, important not for the eye only, but often decisive in the diagnosis of general affections. The only place where we can see a piece of brain in the living lies

*Paper read Nov. 14, 1901, Society of Physicians of the Charité. Berliner Kl. Wochenschr., Dec. 2, 1901.

here in the optic papilla; also, the only place where we can inspect the vascular system and observe the quantity and quality of the blood and the pulsation. There are few internal diseases in which the morbid process is not in some way mirrored in the fine details of the fundus of the eye. He only who does not know the ophthalmoscope sufficiently might oppose the fact that internal clinicians consider in their clinics the ophthalmoscope of equal importance with the stethoscope and the percussion hammer.

The fiftieth anniversary of the ophthalmoscope in this year was first noticed in America, and at the Pan-American Exhibition at Buffalo an exhibition of ophthalmoscopes was shown, at which it is said there were about 200 ophthalmoscopes from America. In August of this year Prof. Uhthoff mentioned this anniversary at the meeting of the German Ophthalmological Society at Heidelberg. He, further, tried to find out something about the manner in which this invention took place, and searched in Koenigsberg after old documents and models of Helmholtz—unfortunately nearly in vain. He says: "I have had to learn how difficult after fifty years it already is to find out smaller details concerning even as important and far-reaching an invention as this one."

It is not even fully ascertained when Helmholtz's paper, "Description of an Ophthalmoscope for the Examination of the Living Eye," was published. It must have been in the last quarter of 1851.

At the meeting at Koenigsberg of the Society for Scientific Medicine Helmholtz first demonstrated his mirror, on November 11, 1851. This is thus entered on the minutes by Dr. Wohlgemuth: "Mr. von Helmholtz read an interesting paper on his ophthalmoscope. He showed the instrument and explained its application, whereupon the society adjourned and the members joined in a social talk."

Neither instruments nor models of von Helmholtz could be found in Koenigsberg.

Accidently, however, I have succeeded after all during my researches to find some traces. While hunting for this, my assistant, Dr. von Hasselberg, found in a French journal a copy of a letter of von Helmholtz which is of the greatest interest. Via Madrid and Paris, through the kindness of Dr.

Landolt, I have received a copy of this letter by the hand of Mrs. von Siemens, von Helmholtz's daughter. In our literature the letter is certainly not published and not known. It is dated on December 17, 1850, and addressed by von Helmholtz to his father at Potsdam. In it I find:

"DEC. 17, 1850.

* * * "Concerning the measurements of time, I have so far no new results, but spent my time with the construction of other apparatus and the necessary preliminary work. Aside from this, occasioned by my lectures on the physiology of the special sense organs, I have made an invention which may be of the most important use for ophthalmology. It really lay so close at hand and necessitated no further knowledge than what I had learned of optics at the gymnasium, so that it seems ridiculous to me how others and myself could be so dull as not to find it. It is a combination of glasses by means of which it is possible to illuminate the dark background of the eye through the pupil without making use of a dazzling light, and to see all the details of the retina clearly, more clearly even than we can see the external parts of the eye without magnifying lens, since the refracting media of the eye act like a lens, with a twenty-fold magnifying power for the retina. You can see the blood-vessels in the prettiest manner, the divisions of the arteries and veins, the entrance of the optic nerve into the eye, and so on. Till now a series of important diseases of the eye were grouped under the head of black cataract, a terra incognita, since the changes were not seen during life, and often not after death. By my new invention the most minute examination of the interior of the eye is made possible. Being a regular egg of Columbus, I had it at once proclaimed as my own in the Physical Society of Berlin; I have at present ordered such an instrument to be made which will be better and handier than my own, made of pasteboard; I shall, if possible, make examinations of patients with our chief oculist here, and shall then publish it."

I cannot share the opinion of Helmholtz that but the knowledge in physics taught at the gynasium was sufficient to invent the ophthalmoscope. Certain it is that many who knew a great deal more tried in vain. This was probably not

simply an expression prompted by modesty; no, as is often the case, the genius was not conscious of his own titanic powers. What he can do easily, he thinks is easy.

In this letter we have a new trace which takes us to Berlin into the Physical Society in 1850. How thoroughly it had been forgotten that a manuscript by von Helmholtz had been presented and read here is seen from the fact that Uhthoff and the lately deceased Professor Arthur Koenig searched everywhere for traces without thinking of the Physical Society. * * * *

* * * * To my question A. Koenig answered: "In the minute-book of the Physical Society I find concerning the meeting of December 6, 1850: Name of lecturer: E. Du Bois-Reymond; subject of the paper: Communication of Helmholtz on 'The Shining of the Eyes.'

"Both entries are by Du Bois-Reymond's hand. It seems, therefore, that Helmholtz sent him a short manuscript from Koenigsberg, which he read to the society. The transactions were then not published. It is now impossible to find out what became of this manuscript. The secretary, Beetz, states that four papers were read that evening, and that the following were present: Du Bois-Reymond, Roth, Cohn, Koenig, Grossman, Wiedemann, Jungk, Splittberger, Langguth, Koerte, Werther, Fick, Heintz, Beetz, Brix, Barth and Gericke."

We have, then, succeeded in tracing the history of the ophthalmoscope a little further back than previously known. The invention was made in 1850 and the first publication was made on December 6, 1850, at Berlin before the Physical Society.

Von Helmholtz himself wrote twice about the ophthalmoscope. First, in 1851, the monograph; "Description of an Eye-Mirror for the Examination of the Living Eye." Second, in 1852, in *Vierordt's Archives:* "On a New, Simple Form of the Ophthalmoscope."

He furthermore spoke about the manner in which he invented it, when at the meeting on August 9, 1886, at Heidelberg he was presented by the German Ophthalmological Society with the Graefe medal. (Cf. Supplement to the *Klin. Monatsbl. f. Augenhlk.*, XXIV., 1886).

He again discoursed about it at the celebration of his 70th birthday, on November 2, 1891. (Speeches made at the celebration in honor of H. von Helmholtz, Berlin, 1892. Hirschwald). I should like to cite from his speech the following important words: "I at once went at it, and pasted the instrument together of trial lenses and microscopical cover glasses. At first it was difficult to use. *Without the certain theoretical conviction that it must work I should, perhaps, have left it alone. After a week, however, I had the great pleasure to be the first to see clearly before him a living retina.*"

Shortly before his death, during his trip through America (1893) he spoke once more concerning the invention of the ophthalmoscope at Professor Knapp's clinic. According to the report he said: "The new which I could claim was the solution of the question of how the optical images of the fundus could be made visible. All of my predecessors had stopped midway. As soon as I had solved this problem, the making of the ophthalmoscope was easy, and it needed but two days in order to experiment with it successfully."

[Here follows the demonstration of a collection of ophthalmoscopes. The paper ends with the following remarks]:

The historical sequence of the ophthalmoscopes here shown begins naturally with von Helmholtz's models. These are the well-known three-sided boxes with a right-angle three-cornered base, and with, as hypothenuse, three plano-parallel plates of glass which reflect the light under an angle of 56° into the eye to be examined. The light is thus polarized.

The oldest models of von Helmholtz and his immediate successors did not remain in use long, as it was soon found that, in place of the glass plates of von Helmholtz, a mirror with a central perforation was much more useful. There have been about 100 successors to von Helmholtz's ophthalmoscope. Even to-day new inventions are being made in this field.

MEDICAL SOCIETIES.

PROCEEDINGS OF THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.*

DAVID LITTLE, M.D., F.R.C.S.E., President, in the Chair.

CLINICAL EVENING.

Thursday, December 12th, 1901.

NEW GROWTH OF ORBIT.

MR. H. WORK DODD showed a peculiar new growth in the orbit. The patient was a woman, aged 39, who was seen in October, 1901, with the history that eleven years ago she had a small growth of the upper lid which in four years had attained the size of a pea. This was then removed. Two years later a lump appeared, and this broke down and healed several times, and had attained the size of a filbert, being situated at the outer side of the orbit. It was adherent to the bone. The eye was pushed to the nasal side, and there was an enlarged gland in front of the ear. The whole contents of the orbit were removed, and the bone to which they were adherent was scraped. The lacrymal gland was normal. The pathologists' report stated that it was an unusual form of carcinoma allied to rodent ulcer. As much difference of opinion was expressed on the sections, the growth was referred to a pathological committee.

CASES.

MR. HENRY JULER showed the following cases: (1) A congenital case of retinal pigmentation situated towards the periphery of the fundus. (2) Peculiar macular changes due to choroido-retinitis. (3) A case of congenital aniridia. In this latter case the mother and daughter were affected. The mother came to Mr. Juler stating that the sight had always been defective, and when seen one eye was quite blind from glaucoma. After removal, it was found on dissection that

*British Medical Journal.

there was a ring of iris at the extreme periphery which had caused blocking of the angle. The lens was partially opaque. The daughter had come under the care of Mr. R. D. Batten also suffering from glaucoma, and for this he had been induced to do sclerotomy, but it was not successful. He thought it was contrary to what one would expect that an eye without an iris should have glaucoma.

Mr. Devereux Marshall stated that he had seen several cases of this sort, and he never remembered seeing one who did not have glaucoma. This was due to the fact that the stump of iris which was always found present was sufficient to block the angle, and this narrow ring was quite sufficient to produce the disease.

Mr. Treacher Collins had examined several cases, and had shown that they were specially liable to chronic glaucoma.

Mr. Treacher Collins showed a child with congenital thickenings of the conjunctiva, opacities of the cornea, and a notch in the left lower lid in the vicinity of the outer canthus.

Mr. G. Brookshank James showed three cases of infantile tabes due to congenital syphilis. They were all members of the same family, and showed Argyll-Robertson pupils and other symptoms of tabes. There was, however, no atrophy of the discs, and the fields were normal. He also showed a case of occlusion of the four lacrymal puncta, probably congenital. There was epiphora with dacryocistitis, and for this he had opened one of the occluded lower puncta.

Mr. J. B. Lawford showed an unusual case of choroido-retinitis in a subject of hereditary syphilis.

Mr. G. W. Roll showed a case of localized fundus changes, probably of traumatic origin. The eye was injured in May last by being struck with a piece of iron. Two months later definite fundus changes were present. A foreign body was localized in or just in front of the sclerotic. There was seen to be a patch of atrophy close above the macula with pigmentary changes around it. He thought the foreign body, which was 3 mm. long, had entered through the cornea, iris, and suspensory ligament, as the lens was clear.

Mr. Ormond mentioned a similar case he had had in which after ten days no wound was visible, although it was easily seen immediately after the injury.

Mr. Doyne said there was a black mark at the back of the lens which possibly was a scar.

Mr. Lang mentioned a similar case he had watched for two years without deterioration of vision, and in the present case, as everything was quiet, he should be inclined to leave it alone.

Mr. J. H. Fisher showed a case of Mooren's ulcer of the cornea.

Mr. L. V. Cargill showed a woman, aged 22, whose sight had been gradually failing for about a year. The family history was good. Two years ago she suffered much from headache, and when first seen she was very anemic, but an examination of the blood and urine showed nothing abnormal. The vision was $^{6}/_{60}$ and J. 14. The changes consisted of numerous greyish yellow spots in the choroid. There were no vitreous opacities and the vessels of the fundus showed nothing but perhaps slight dilatation.

Mr. N. Bishop Harman showed a patient with a badly developed eye with ciliary processes adherent to the anterior surface of a shrunken cataractous lens. This was congenital.

Mr. Fisher said that about three years ago he had seen an almost identical case.

Mr. Harman also showed a simple and efficient portable refractometer.

At the meeting of the Section of Ophthalmology, College of Physicians of Philadelphia, December 17, 1901, Dr. C. A. Veasey reported a case of cystadenoma of the lacrymal caruncle which was seen in a female aged 57 years. The growth was about the size of a pin's head, of a bluish-red color, and was situated in the right lacrymal caruncle. It lay beneath the surface, the caruncular tissue overlying it being translucent, was slightly ovoid in shape, and presented the external appearance of a minute angioma. It was removed under cocain anesthesia, and microscopic examination showed it to be a cystadenoma developed from the tubular glands in the caruncle.

ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

EPICANTHUS.

Foggin (*Ophthalmic Review*, January) reviews the literature of the subject and discusses the measures adopted for its relief.

"While doing Sichel's operation, five years ago, it occurred to him to pass the sutures, and tie them tightly to harelip pins, one on each side, thus pinching up a fold of skin upon the bridge of a flat nose. The result of the operation of this kind, which he then performed, was neat in appearance. It seemed questionable if such an appearance could be maintained, as the eminence of tissue was lacking. Accordingly he passed a Graefe knife subcutaneously on each side of the nose, detached the tissues as freely as possible from the nose-bridge and somewhat beyond the extent of the pinched-up fold on either side, passing sutures through and tieing them with the requisite degree of tightness to a short piece of leaden style on each side. The result of the first operation was not favorable, the swelling and pain being more than the seven years old patient could endure. Three years later the author did the same kind of an operation, with the single difference that the style was replaced by a flat piece of lead shaped to each side of the nose, about an inch and a quarter long, tapering from five-eighths to half an inch in width, the plates being a trifle more than one-eighth of an inch in thickness. These were kept *in situ* for a fortnight, the pain and swelling being somewhat severe for four days—then gradually subsiding. The result was gratifying. The epicanthus disappeared; in place of the flat bridge, there was a more natural con-

tour of the nose, and the central unsightly scar of the ordinary operation was, of course, avoided. There have lately been reported some cases of bone grafting, in one of which a portion of the patient's own fourth metatarsal bone was used. This has been done, however, chiefly in order to replace a necrosed vomer, where of course the conditions are very different from those obtaining in the class to which attention is drawn in this article."—*Albany Med. Annals.*

DANGERS OF THE USE OF ADRENALIN IN EYE DISEASES.

Henry B. Lemere (*American Medicine*, October 5), in discussing the use of adrenalin in eye diseases, says:

"Its physiologic action is very evidently that of an intense astringent when applied locally to the ocular conjunctiva, 30 seconds after a drop of the 1 to 1,000 solution has been instilled into the conjunctival sac, its vessels are contracted and the eye-ball becomes blanched. This contraction extends to those branches of the long ciliary arteries which anastomose with the conjunctival vessels and supply the more superficial portions of the sclera anteriorly. Bearing this in mind, it is well to recollect the result of astringents on the body surface elsewhere, the well-known action of cold, for instance, causing congestion of the deeper structures, and also the reverse action obtained in relieving deeper congestions by leeching, cupping and blistering.

"The tendency then of the local application of this astringent is to blanch the conjunctiva at the expense of risking the engorging of the deeper anastomosing blood-supply of the iris and ciliary body. With these vessels in their normal condition and the iris or cornea unaffected this danger is practically nil. But with a tendency to iritis, and especially such tendency as accompanies keratitis and corneal ulcer, the danger is very real.

"Three such cases have recently come to my notice. One in which a superficial corneal ulcer was, after the instillation of adrenalin chlorid solution 1 to 1,000, complicated with adhesive iritis. The other two were cases of iritis progressing favorably when acute exacerabations together with adhesions immediately followed the use of this drug.

"Besides the danger of the use of adrenalin in these deeper inflammations, I would call attention to the fact that in superficial inflammations in which it is used the additional use of some simple wash as boric acid or sodium borate solution will greatly enhance its benefits."

MODIFIED OPEN WOUND TREATMENT.

Heiman *(Münchener Med. Woch.)* discusses the use and advantages of a protective apparatus, after operation on the eyeball, instead of the usual snug-fitting bandage. With his apparatus the eye is allowed to remain open, the lids opening and closing as in the normal condition. Against the bandage, as ordinarily used, he offers the following:

1. The bandage is easily movable, and in an improper position exerts a harmful pressure upon the eyeball.

2. The bandage gives rise to an increase of micro-organisms always present in the conjunctival cul-de-sac by means of a stagnation of the secretion and increase of temperature.

3. The physiological action of the lid, which does away with the secretion and bacteria so excellently, is impeded.

4. The bandage, particularly when tightly applied, exerts a pressure upon the sclera, and gives rise to a gaping of the wound.

5. The psychical influence of the bandage, especially if binocular, and the inconvenience in summer, or in a heated room, are so well known as to scarcely require mention.

The advantages of a protective apparatus in this modified open-wound treatment are:

1. Protection of the eye from mechanical injuries.

2. Facilitates the removal of the bacteria from the conjunctival sac by permitting opening and closing of the lids.

3. More rapid decrease in the irritability of the operated eye in consequence of the prevention of stagnation.

4. A better coaptation of the wound margins and a decrease of the annoying operative astigmatism.

5. A decrease in the annoyance to the patient.

6. Decrease in the possibility of a psychical disturbance.

7. An easier and more convenient control in subsequent treatment.

TOTAL RETROFLEXION OF THE IRIS.

A. A. Hubbell (*Boston Medical and Surgical Journal*, Nov. 14, 1901) reports the case of a man aged 55, who, two months before coming under observation, had fallen from a wagon and struck the left side of his head and face against the pavement. When first seen by the author the left eyelids were ecchymotic, the cornea somewhat hazy, and the aqueous chamber filled with blood. After the blood had been absorbed the lens was found to be absorbed or dislocated to a point when it could not be found. The former supposition is the one accepted. The iris was thrown entirely out of view; evidently by being reflected against the ciliary body. The mechanism of retroflexion probably consisted (1) In removing the posterior support of the iris by completely rupturing the zonula of Zinn; (2) in rupturing the pupillary margin of the iris, probably at several points, allowing this membrane to be pushed against the ciliary body; (3) the effusion of blood resulting from the lacerations of the iris, filled the space between it and the cornea, and thus held it firmly in its new position until it became so fixed that it could not replace itself.

A CASE OF OSTEOMA OF THE ORBITAL PLATE OF THE FRONTAL BONE, BRAIN ABSCESS, AND THROMBOSIS OF THE CAVERNOUS SINUS.

J. W. Charles and M. B. Clopton (*Interstate Med. Journal*, November) reports the following case: L. K., aged 23, presented himself for the relief of an intense frontal headache and sore left eye of twenty-four hours duration. Status præsens, O.D., normal O.S., vision, fingers at 20 feet; lids odematous and tense; conjunctiva chemotic; globe almost immobile; retinal veins dilated and slightly tortuous, and severe pain in eye and forehead; temp. 100.2°; pulse 80. From the time of admission to the hospital until death, five days later, the temp. ranged from 100.2° to 107.6° (with morning remissions and evening exacerbations), increasing daily, the high point being reached a few hours before death. On the second day after admission the patient had an epileptiform convulsion lasting ten minutes.

Autopsy.—"Beneath the dura, over both parietal regions, was a tenacious fibrous exudate, which also extended over the left frontal lobe. The right side of the base and the posterior half of the left side were free from exudate. The base on the left frontal lobe and the adjacent fissures were covered with a fibro-purulent discharge, and the frontal lobe was the seat of an abscess about the size of a walnut. The contents of the abscess were purulent and bloody, and were contained by a grayish-black membrane, which merged into the much injected brain tissue that surrounded it. The abscess did not connect with the subdural space, but was separated from it by 1 cm. at its nearest approach. At the corresponding point on the orbital plate of the frontal bone protruded a smooth nodular exostosis, 1.5 cm. in height and 2 cm. in diameter at its base. This pressed into the frontal lobe directly beneath the abscess, and was covered with a fibrous bloody exudate. The orbital plate, when chiseled loose, opened into an empyema of the frontal cells, the osteoma presenting almost as much on the under surface of the orbital plate as it had above.

"The left cavernous sinus was thrombosed for its entire course. Cover-slips from the meningeal exudate showed no organisms. Cultures were not made. Sections of the exostosis showed a simple osteoma."

IRIDECTOMY IN GLAUCOMA.

The following is part of a letter received from Dr. George J. Bull of Paris: "During the debate before the French Congress of Ophthalmology, in May, on De Wecker's report on the value of iridectomy in glaucoma, Dr. Emile Javal, now totally blind in both eyes from glaucoma, was lead into the room by a servant and took one of the front seats. One speaker after another expressed his opinion on the subject, only to show that little is known with certainty, and that we have to do with a disease which is far from being properly understood. At length Javal was called on to speak, and not rising, as did the other speakers, he turned in his chair towards the centre of the room and began his remarks in a low tone. The men in the farther parts of the room stood

up and came nearer, the better to see Javal and to hear him, and presently all were standing except the speaker and those in the few seats around him. It was a dramatic scene, not to be forgotten; the sightless speaker, eyes covered with dark-blue spectacles, his neck scarred from an operation to excise the sympathetic ganglion, a wounded soldier, indeed, and the older men in the group around him, with the younger men beyond, bending forward the better to hear the soldier's story. From time to time Javal ceased to speak, but no one broke the silence, for it was seen that he was reading with his fingers the notes he held on the table.

"And yet no one has brought us the solution of the problem."—*Ophthalmic Record.*

CONGENITAL CONDITION SIMULATING CHOKED DISC.

C. H. Beard (*Ophthalmic Record*, June, 1901) reports an interesting and comparatively rare case in which the optic nerve entrance in both eyes was entirely hidden by a swelling of fully eight diopters; the retinal vessels were somewhat smaller than usual, but retained their comparative size. (In choked disc the arteries are always small and the veins dilated.) No evidence of brain disease or other cause of optic neuritis could be found. The patient has remained under observation for seven years, is in good health, has suffered no deterioration of vision and no ophthalmoscopic changes have been noticed.

THE PRESENT POSITION OF OPHTHALMIC SCIENCE AND ART.

D. B. St. John Roosa (*Medical Record*, Nov. 16, 1901) has gone carefully into the history of the development of ophthalmic science, showing how it has grown from a crude beginning to one of the most exact departments of the therapeutic art. The author believes a good advance has been made in the treatment of myopia of high degrees, by the invention of the method of reducing the refraction of the eye by the removal of the lens. He discusses the operative measures employed in senile cataract, the various operations of iridectomy, the use of the magnet in the removal of foreign bodies from the eye, the treatment of acute glaucoma, detachment of the retina and strabimus.

ANISOMETROPIA.

Alexander Duane (*Archives of Ophthalmology*, November, 1901) draws the following conclusions:

1. In the large majority of cases of anisometropia, even those in which the difference in refraction exceeds 2 D., the full correction can be applied with success, provided the patient is warned that it may take him one or two weeks to get accustomed to the glasses, and that during this period he must use them steadily.

2. In many instances temporary discomfort is produced by the glasses, but in the majority of such cases the discomfort soon disappears, if the glasses are steadily worn. The period of time that it takes a patient to get used to the glasses so that they no longer give discomfort, varies from a few hours to one or it may be two weeks.

3. After the patient has become accustomed to the glasses they are not only worn with ease and satisfaction, but also often relieve important symptoms, which glasses not compensating the anisometropia do not relieve.

4. It is especially important to apply the correction when there is a beginning squint which is evidently due to the anisometropia. Yet it is in these very cases that we may expect difficulty in the acceptance of the glasses.

5. The causes of temporary or permanent discomfort in using glasses are: (*a*) either the strength of the glasses *per se;* (*b*) the unequal prismatic action of the unequally strong glasses; this gives rise either to diplopia and confused sight, or to muscular asthenopia due to efforts made in overcoming the prism; (*c*) the presence of a muscular deviation producing diplopia. The glasses in this case, by enhancing the distinctness of the double images, force them more upon the patient's attention, so that they are more difficult to ignore, and hence give more trouble than when seen without the glasses. This I believe to be one of the most frequent causes of a permanent difficulty in using the glasses.

6. The statement that glasses correcting the anisometropia cause trouble by producing retinal images that are of a different size in the right eye and in the left is probably fallacious, trouble not being caused in this way.

7. In anisometropia there is a moderate tendency for the right eye to be the more refractive of the two. In my cases, the right eye was the more refractive in 58 per cent., and, counting only the cases of high anisometropia, was the more refractive in 64 per cent.

8. In anisometropia the proportion of cases in which the right eye is the more ametropic about equals those in which the left eye is the more ametropic.

9. Anisometropia is very frequently conjoined with muscular anomalies, and particularly (in 41 per cent. of my cases) with divergence (exophoria or divergent squint). The divergence may be due either to a convergence insufficiency, or to a divergence excess, the latter condition being comparatively common. In the cases that I examined, convergent deviations were less than half as frequent as the divergent.

10. In anisometropia of low degree there is no special tendency to the development of hyperphoria. In high anisometropia hyperphoria is unduly frequent (occurring twice as often as in low anisometropia).

11. The proportion of cases with squint (especially divergent squint) is high, convergent squint being found in 11 per cent., and divergent squint in 14 per cent. of my cases.

DESCEMETITIS A SYMPTOM OF INFLAMMATION OF ANY PORTION OF THE UVEA; SEROUS IRITIS NOT A DISEASE PER SE.

Henry D. Bruns (*Arch. of Oph.*, Nov., 1901) denies the existence of descemetitis as a special condition, reports cases and reviews the literature of the subject. His conclusions are:

1. That there cannot be any such disease as serous iritis; it is equally impossible to conceive of a serous cyclitis or choroiditis. "Simple" cyclitis would seem to be a term of evasion.

2. Descemititis, on which the diagnosis of serous iritis was long made to rest, is a symptom sometimes appearing as an accompaniment of a focus of acute inflammation in the iris, ciliary body or choroid.

3. It may also appear in cases of uveal disease so slight

and evanescent that we are unable to determine the location of the focus, and here the term incipient uveitis more correctly indicates the diagnosis.

4. Descemetitis appears also in certain cases of subacute or chronic uveitis, when the focus cannot be determined, but an inability to find it does not justify the diagnosis of simple subacute or chronic cyclitis.

5. Further observation will probably show it to be frequently the principal symptom of an acute plastic choroiditis, which has been overlooked because too few cases of iritis or cyclitis are subjected to careful ophthalmoscopic examination after recovery and the complete disappearance of the vitreous opacities.

6. Many cases not to be clinically distinguished from such acute plastic choroiditis show to the ophthalmoscope, after clearing of the vitreous, no evidence of a lesion in the choroid. In this it is reasonable to suppose that the choroidal focus was so peripheral as to be out of the field of observation.

7. Plastic choroiditis often appears under the clinical picture of the so-called serous iritis, but such cases usually are observed after a stage of circum corneal injection and descemetitis has passed away.

A CASE OF ENDOTHELIOMA OF THE LACRYMAL GLAND, WITH AN ANALYSIS OF PREVIOUSLY REPORTED CASES OF LACRYMAL GLAND TUMORS.

Aldred S. Warthin (*Arch. of Oph.*, Nov., 1901) sums up his conclusions in the following:

1. The great majority of the lacrymal gland tumors described in literature, under widely different heads, are most probably mixed tumors of endothelial origin, similar in structure to those of the parotid and submaxillary glands. These tumors form a type peculiar to the serous glands and differ from the endotheliomata found in other parts of the body in their tendency to form cartilage, hyaline and myxomatous tissue, and are of relatively slight malignancy.

2. Histogenetically they arise from the flattened endothelium of the lymph spaces, and hence are called endotheliomatæ; but their peculiar characteristics warrant the em-

ployment of some special designation. The use of the term endotheliomata in itself appears somewhat misleading in view of the fact that endotheliomatæ elsewhere are of the nature of sarcoma and are for the greater part very malignant. This growth partakes more of the nature of mature connective tissue tumors. The designations myxochondroma endotheliale, chondroma endotheliale, etc., might be employed as the case warranted to indicate both histogenesis and structural characteristics of the growth in the absence of any specific term for the cells lining the tissue spaces or the tumors derived from them."

THE COSMETIC AND VISUAL RESULTS IN SQUINT.

J. M. Ray (*Am. Jour. Med. Asso.*, Nov. 2, 1901) concludes his paper with the following observations:

1. The effect gained in the treatment of strabismus, whether parallelism of the visual axes be obtained by a cycloplegic, glasses, orthoptic exercise, or an operation, is largely, or we might say, wholly cosmetic.

2. Glasses should be adjusted to the eyes of squinting children at as early an age as possible, depending upon the ability of the parent to control the child; and they should always be worn for a sufficient length of time to determine their effect upon convergence, before any steps in the way of an operation are undertaken.

3. The use of the exclusion-pad and orthoptic training are advisable, not so much in the hope of increasing the vision in the squinting eye, as to improve the power of co-ordination in the recti muscles, so that when the child reaches the proper age for operation the power of simultaneous muscle action will not have been lost.

4. Binocular single vision is not present in more than 7 per cent. of the cases of squint, and its production in a larger percentage uncertain and unsatisfactory. Parallelism of the visual lines does not mean binocular vision.

5. Double images are not necessary for a successful issue. Cosmetic results can be obtained and maintained where the fusion power is absent. This is true in monocular squint with great amblyopia as well as the alternating form.

6. Congenital amblyopia is often found in eyes that do not squint, especially combined with hypermetropia and astigmatism, and often in members of a family where squint in others is present.

7. In alternating squint if the hypermetropia is of a high degree the chances for producing parallelism are better than when the hypermetropia is low. In alternating squint with hypermetropia of a medium degree the necessity for an operation and the difficulties of producing parallelism by tenotomy are greater than in monolateral squint.

8. The effect of tenotomy is greatly influenced by the amount of abducting power present in the corresponding externus. This should always be especially noted in the alternating variety.

9. Two tenotomies on the same internus is bad surgery, since it invariably leaves a sunken caruncle and later divergence.

10. From a cosmetic standpoint the correction by operation is not as simple as might be supposed. What is gained by straightening the eye is lost if there is left a noticeable exophthalmos with limited motion of the eye both outward and inward.

PAMPHLETS RECEIVED.

"A Case of Methyl-Alcohol Amaurosis, the Pathway of the Poison Being the Lungs and the Cutaneous Surface," by G. E. de Schweinitz, M.D.

"Rupture of the Sphincter of the Iris and V-Shaped Rupture of the Choroid on the Nasal Side from Contusion of the Eyeball," by G. E. de Schweinitz, M.D.